UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,935	03/31/2004	Morio Oba	04739.0081	5293

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EXAMINER
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ART UNIT	PAPER NUMBER
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)
	10/812,935	OBA ET AL.
	Examiner	Art Unit
	Saif A. Alhija	2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2004*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *See Continuation Sheet*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/31/04, 10/4/05, 11/10/05, 5/26/06, 12/8/06, 3/15/07.

DETAILED ACTION

1.   Claims 1-11 have been presented for examination.

Claims 12-51 have been non-elected in response to the restriction dated 4 June 2007.

PRIORITY

2.   Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 4 October 2005, 10 November 2005, 26 May

2006, 15 March 2007, and 8 December 2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly,

the Examiner has considered the IDS' as to the merits.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions
> and requirements of this title.

MPEP 2106 recites:

The claimed invention as a whole must accomplish a practical application. That is, it must produce a

"useful, concrete and tangible result" State Street 149 F.3d at 1373, 47 USPQ2d at 1601-02. A process that consists

solely of the manipulation of an abstract idea is not concrete or tangibles. See In re Warmerdam, 33 F.3d 1354,

1360, 31 USPQ2d 1754, 1759 (Fed.Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459.

3.   **Claims 1-11 are rejected** under 35 U.S.C. 101 because the claimed invention is directed to non-statutory

subject matter.

i)   The claims recite shape transformations and design data and as such do not produce a useful,

concrete, and tangible result. The claims appear to be directed to a CAD environment however as presented they

appear to be merely an abstract idea as well as mere data manipulation.

Appropriate correction is required.

All claims dependent upon a rejected base claim are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   **Claims 1-11 are rejected** under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i)   The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document.

ii)   Claim 1 recites "input of allocation of a shape attribute of the article between an attribute of a transformation region for which the shape transformation process is to be performed and an attribute of a maintaining region." It is unclear what is meant by an article in this context as well as how a shape is allocated between two attributes when an attribute is merely a property of a thing. This renders the claim vague and indefinite. This further applies to claim 5.

iii)   Claim 1 recites "the operation device fixes a node located at a boundary between the transformation region and the maintaining region, and displaces a node not located at a boundary between the transformation region and the maintaining region in accordance with the input transformation instruction vector." It is unclear what is meant by this limitation. It is unclear what is meant by fixing a node and displacing a node, more specifically how does the fixing and displacing of a node result in shape transformation? This renders the claim vague and indefinite. This further applies to claim 5.

iv)   Claim 2 recites "adds the auxiliary shape to the design data." It is unclear what is meant by adding a shape in the context of the claims and therefore the claim is rendered vague and indefinite. This further applies to claim 6.

v)   Claim 11 recites an "allowable angle." It is unclear what encompasses an allowable angle or how allowability is determined. This renders the claim vague and indefinite.

Appropriate correction is required.

All claims dependent upon a rejected base claim are rejected by virtue of their dependency.

<u>*Claim Rejections - 35 USC § 102*</u>

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the

rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United .
States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another
filed in the United States before the invention by the applicant for patent or (2) a patent granted on an
application for patent by another filed in the United States before the invention by the applicant for patent,
except that an international application filed under the treaty defined in section 351(a) shall have the effects
for purposes of this subsection of an application filed in the United States only if the international
application designated the United States and was published under Article 21(2) of such treaty in the English
language.

4.   **Claims 1-11 are rejected** under 35 U.S.C. 102(b) as being clearly anticipated by **Borrel et al.**

"Deformation of n-dimensional objects."

Regarding Claim 1:

The reference discloses A design data generating apparatus for generating new design data of an article by

performing a shape transformation process with respect to design data of the article which has been already

generated, the apparatus comprising:

an input device for receiving transformation instructions from an operator; **(Page 351, Introduction,**

interactive editing) and

an operation device for performing an operation of the design data in accordance with the transformation

instructions which are input, **(Page 351, Introduction, shape-dependent transformations)** wherein

the input device receives input of allocation of a shape attribute of the article between an attribute of a

transformation region for which the shape transformation process is to be performed and an attribute of a

maintaining region which maintains its shape, and input of a transformation instruction vector which is defined by a

direction and an amount of transformation with respect to the article, **(Interpreted to be shape deformation. Section 2.1-2.2, and 2.3.1-2.3.3)**

the operation device fixes a node located at a boundary between the transformation region and the maintaining region, and displaces a node not located at a boundary between the transformation region and the maintaining region in accordance with the input transformation instruction vector. **(Section 2.1, point displacement. Section 2.2, intermediate space)**

Regarding Claim 2:

The reference discloses An apparatus according to claim 1, wherein the shape of the article is composed of a base shape and an auxiliary shape, and the operation device performs a transformation process only with respect to the base shape, and adds the auxiliary shape to the design data after the shape transformation process. **(Section 5.2, shape adjustment)**

Regarding Claim 3:

The reference discloses An apparatus according to claim 1, wherein the input received by the input device from the operator includes instructions for an operative node of the transformation instruction vector. **(Section 4.3.2.1, user modification utilizing vectors)**

Regarding Claim 4:

The reference discloses An apparatus according to claim 3, wherein the instructions for an operative node of the transformation instruction vector include point designation concerning a single node, line designation concerning a line connecting nodes, and plane designation concerning a plane enclosed by nodes. **(Page 351, Introduction, 2D, 3D, and 4D)**

Regarding Claim 5:

The reference discloses A design data generating method for generating new design data of an article by performing a shape transformation process with respect to design data of the article which has been already generated, the method comprising:

a region attribute input step of receiving, from an operator, allocation of a shape attribute of the article between an attribute of a transformation region for which the shape transformation process is to be performed and an attribute of a maintaining region which maintains its shape; (Page 351, Introduction, interactive editing and shape-dependent transformations)

a transformation instruction input step of receiving, from the operator, a transformation instruction vector which is defined by a direction and an amount of transformation with respect to the article, (Interpreted to be shape deformation. Section 2.1-2.2, and 2.3.1-2.3.3) and

a shape transformation processing step of performing a displacement process with respect to a node of a shape element in accordance with the transformation instruction vector which is input, a node located at a boundary between the transformation region and the maintaining region being fixed and a node not located at the boundary between the transformation region and the maintaining region being displaced. (Section 2.1, point displacement. Section 2.2, intermediate space)

Regarding Claim 6:

The reference discloses A method according to claim 5, wherein the shape of the article is composed of a base shape and an auxiliary shape, and a transformation process is performed only with respect to the base shape, and the auxiliary shape is added to the design data after the shape transformation process. (Section 5.2, shape adjustment)

Regarding Claim 7:

The reference discloses A method according to claim 5, wherein in the shape transformation processing step,

(1) the transformation region is subdivided into a plurality of shape elements; (Section 3.4.1, Right Column, Two Deformations starting with "This function f can....") and

(2) displacement of a node which defines the shape of the shape elements is performed, wherein when a node is located on a single bending line of an article (e.g. 2D, 3D, and 4d shapes) , the node is displaced in the extending direction of the bending line and by an amount corresponding to a component of the input transformation vector (e.g. merely shape deformation and transformation) in the extending direction of the bending line, when a node is located on the intersection of a plurality of bending lines of an article, the node is displaced in the extending direction of the bending line which forms the smallest angle (e.g. Section 3.5.1 B-Spline) with respect to the transformation vector and by an amount corresponding to a component of the input transformation vector in the extending direction of the bending line (e.g. extension of a corner), and when a node is not located on the bending line of a article, the node is displaced in accordance with a vector obtained by projecting the transformation instruction vector onto an extension plane of an article shape plane at that node. (Section 3.4.1, Right Column, Two Deformations and corresponding description)

Regarding Claim 8:

The reference discloses A method according to claim 5, wherein in the transformation instruction input step, the input received by the input device from the operator includes instructions for an operative node of the transformation instruction vector. (Section 4.3.2.1, user modification utilizing vectors)

Regarding Claim 9:

The reference discloses A method according to claim 8, wherein the instructions for the operative node of the transformation instruction vector include point designation concerning a single node, line designation concerning a line connecting nodes, and plane designation concerning a plane enclosed by nodes. (Page 351, Introduction, 2D, 3D, and 4D)

Regarding Claim 10:

The reference discloses A method according to claim 5, wherein in the shape transformation processing step, when an edge line connecting nodes of the transformation region is to extend beyond a node belonging to the

boundary between the maintaining region and the transformation region as a result of node displacement in

accordance with the transformation instruction vector input by the operator,

(1) the transformation instruction vector input by the operator is divided into a first transformation

instruction vector which terminates where the edge line connecting nodes in the transformation region reaches a

node in the maintaining region and a second transformation instruction vector which starts where the edge line

connecting the nodes in the transformation region reaches the node in the maintaining region; **(Interpreted to be**

shape transformation within a shape. Section 3.4.1, Right Column, Two Deformations and corresponding

description. See also Section 2.2, intermediate space)

(2) a shape transformation process in accordance with the first transformation instruction vector is

performed only with respect to the transformation region which is designated by the operator; **(Interpreted to be**

shape deformation based on user interaction. Section 3.4.1, Right Column, Two Deformations and

corresponding description. See also Section 4.3.2.1, user modification utilizing vectors)

(3) the attribute of the maintaining region including the node which contacts the edge line of the

transformation region is reallocated as the attribute of the transformation region; **(Interpreted to be shape**

transformation within a shape. Section 3.4.1, Right Column, Two Deformations and corresponding

description. See also Section 2.2, intermediate space. See also Section 4.3.2.1, user modification utilizing

vectors)

and

(4) a shape transformation process in accordance with the second transformation instruction vector is

performed with respect to the transformation region, including the reallocated transformation region, of the article

shape which has been subjected to the transformation process in accordance with the first transformation instruction

vector. **(Interpreted to be shape deformation based on user interaction. Section 3.4.1, Right Column, Two**

Deformations and corresponding description)

Regarding Claim 11:

The reference discloses A method according to claim 10, wherein in the transformation instruction input

step, the input includes an allowable angle between the transformation instruction vector and the article bending

line, wherein in the shape transformation processing step, a node for which the angle formed by the transformation instruction vector and the bending line is less than the allowable angle is displaced in the extending direction of the bending line, and a node for which the angle formed by the transformation instruction vector and the bending line is equal to or greater than the allowable angle is displaced in accordance with the transformation vector. **(Interpreted to be corner transformation. Section 3.5.1, B-Spline functions)**

Examiners Remarks

5.   i)   Examiner has cited particular columns and line numbers in the references applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

        ii)   The Examiner respectfully requests, in the event the Applicants choose to amend or add new claims, that such claims and their limitations be directly mapped to the specification, which provides support for the subject matter. This will assist in expediting compact prosecution.

        iii)   Further, the Examiner respectfully encourages Applicants to direct the specificity of their response with regards to this office action to the broadest reasonable interpretation of the claims as presented. This will avoid issues that would delay prosecution such as limitations not explicitly presented in the claims, intended use statements that carry no patentable weight, mere allegations of patentability, and novelty that is not clearly expressed.

Conclusion

6.   All Claims are rejected.

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saif A. Alhija whose telephone number is (571) 272-8635. The examiner can normally be reached on M-F, 11:00-7:30.
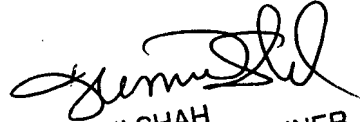
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah

can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding

is assigned is (571) 273-8300. *Informal or draft communication, please label PROPOSED or DRAFT*, can be

additionally sent to the Examiners fax phone number, (571) 273-8635.

Information regarding the status of an application may be obtained from the Patent Application Information

Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR

or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more

information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

August 21, 2007

KAMINI SHAH
SUPERVISORY PATENT EXAMINER